Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-29. (Canceled).

30. (New) A method of fabricating a semiconductor wafer, comprising the steps of:

transferring a processed wafer from a wafer process station to a metrology station spaced apart but coupled to the process station, the metrology station containing a rotatable chuck for receiving and supporting the wafer and a translatable measurement head for measuring the wafer;

rotating the rotatable chuck to orient the wafer at a predetermined position;

adjusting a position of the measurement head relative to the wafer to be aligned with a measurement location on the wafer;

generating a broadband light beam using a light source that is separate from the measurement head;

directing the broadband light beam toward the wafer using an optical fiber coupling the light source to the translatable measurement head;

obtaining a first measurement of spectral content of the broadband light beam which has been reflected from the wafer;

obtaining a second measurement of spectral content of the broadband light beam which has not been reflected from the wafer; and

receiving the first and second measurements at a processor and evaluating the sample based on the first and second measurements, where the second measurement is used to correct for system characteristics.

31. A method according to claim 30, wherein:

directing the broadband light beam toward the wafer includes using a beam splitter positioned along a beam path of the broadband light beam.

32. A method according to claim 30, wherein:

directing the broadband light beam toward the wafer includes using a mirror positioned along a beam path of the broadband light beam.

33. A method according to claim 30, further comprising:

focusing the broadband light beam on the sample using an objective lens of the measurement head that is moveable in a direction substantially perpendicular to a plane of the sample.

34. A method according to claim 30, further comprising:

loading the wafer into the wafer process station using a transport system.

35. A method according to claim 34, further comprising:

processing the wafer in the process station.

36. A method according to claim 30, wherein:

the first and second measurements are obtained simultaneously.

37. A method according to claim 30, wherein:

the broadband light beam is generated by a UV light source.

38. A method according to claim 30, wherein:

the broadband light beam is generated by a light source defined by at least one lamp, said light source emitting a range of wavelengths, said range of wavelengths including visible and ultraviolet light.

39. A method according to claim 30, wherein:

the broadband light beam is generated by a lamp selected from the group consisting of a UV xenon lamp, a tungsten lamp, a deuterium lamp and a xenon lamp.

40. A method according to claim 30, wherein:

adjusting a position of the measurement head relative to the wafer includes moving system optics of the measurement head in a first direction parallel to a surface of the wafer.

41. A method according to claim 40, wherein:

adjusting a position of the measurement head relative to the wafer further includes moving a moveable focusing objective in a second direction parallel to the surface of the wafer, the first direction being orthogonal to the second direction.

42. A method according to claim 30, wherein:

a path length of the broadband light beam from the source to the wafer is substantially constant regardless of the position of the measurement head.

43. A method according to claim 30, further comprising:

detecting an edge position of the wafer while the rotatable chuck is rotated in order to determine a position offset of the sample.

44. A method according to claim 30, further comprising:

passing the broadband light beam, reflected from the wafer, through a pinhole mirror before obtaining the first measurement.

45. A method according to claim 44, further comprising:

receiving a reflected portion of the broadband light beam, reflected by the pinhole mirror, to a camera for determining a measurement position relative to the wafer.

46. A method according to claim 45, further comprising:

focusing the pinhole of the pinhole mirror onto the camera in order to determine a precise measurement position relative to the wafer.